

the Angles ACD , BCE , equal to one another, and terminating all the Light which falls upon the Paper from the point where the edges of the Knives meet; eis , fkt , and glv , three hyperbolical lines representing the terminus of the shadow of one of the Knives, the dark line between the first and second fringes of that shadow, and the dark line between the second and third fringes of the same shadow; xip , ykq and zlr , three other Hyperbolical lines representing the terminus of the shadow of the other Knife, the dark line between the first and second fringes of that shadow, and the dark line between the second and third fringes of the same shadow. And conceive that these three Hyperbolas are like and equal to the former three, and cross them in the points i , k and l , and that the shadows of the Knives are terminated and distinguished from the first luminous fringes by the lines eis and xip , until the meeting and crossing of the fringes, and then those lines cross the fringes in the form of dark lines, terminating the first luminous fringes within side, and distinguishing them from another Light which begins to appear at i , and illuminates all the triangular space $ipDE$ comprehended by these dark lines, and the right line DE . Of these Hyperbolas one Asymptote is the line DE , and their other Asymptotes are parallel to the lines CA and CB . Let rv represent a line drawn any where upon the Paper parallel to the Asymptote DE , and let this line cross the right lines AC in m and BC in n , and the six dark hyperbolical lines in p , q , r ; s , t , v ; and by measuring the distances ps , qt , rv , and thence collecting the lengths of the ordinates np , nq , nr or ms , mt , mv , and doing this at several distances of the line rv ,
from

from the Asymptote DE you may find as many points of these Hyperbolas as you please, and thereby know that these curve lines are Hyperbolas differing little from the conical Hyperbola. And by measuring the lines Ci , Ck , Cl , you may find other points of these Curves.

For instance, when the Knives were distant from the Hole in the Window ten Feet, and the Paper from the Knives 9 Feet, and the Angle contained by the edges of the Knives to which the Angle ACB is equal, was subtended by a chord which was to the Radius as 1 to 32, and the distance of the line rv from the Asymptote DE was half an Inch: I measured the lines ps , qt , rv , and found them 0'35, 0'65, 0'98 Inches respectively, and by adding to their halves the line $\frac{1}{2}mn$ (which here was the 128th part of an Inch, or 0'0078 Inches) the sums np , nq , nr , were 0'1828, 0'3328, 0'4978 Inches. I measured also the distances of the brightest parts of the fringes which run between pq and st , qr and tv , and next beyond r and v , and found them 0'5, 0'8, and 1'17 Inches.

O B S. XI.

The Sun shining into my darkened Room through a small round Hole made in a plate of Lead with a slender Pin as above; I placed at the Hole a Prism to refract the Light, and form on the opposite Wall the Spectrum of Colours, described in the third Experiment of the first Book. And then I found that the shadows of all Bodies held in the coloured Light between the Prism and the Wall, were bordered with fringes of the Colour

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